

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claim 1 (Previously presented) A signal processing apparatus which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

interpolation circuit which generates a plurality of color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to said each pixel position of the image pickup element;

color-difference signal forming circuit for forming color-difference signals based on output of said interpolation circuit;

suppression circuit being provided between said color interpolation circuit and said color-difference signal forming circuit, which suppresses the plurality of color signals generated by said interpolation circuit, if a level of a luminance signal is out of a predetermined range;

wherein it is so constructed that plurality of color signals suppressed which are output from said suppression circuit is regarded as input of said color-difference signal forming circuit.

Claims 2-4 (Cancelled)

Claim 5 (Previously presented) A signal processing apparatus which processes a signal outputted from an image pickup element having complementary color filters, comprising:

interpolation circuit which generates complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to said each pixel position of the image pickup element;

RGB matrix circuit which generates RGB signals from the complementary color signals interpolated by said interpolation circuit;

color-difference signal forming circuit for forming color-difference signals based on the output by said RGB matrix circuit; and

suppression circuit being provided between said interpolation circuit and said color-difference signal forming circuit, which suppresses the RGB signals generated by said RGB matrix circuit, if a level of a luminance signal is out of a predetermined range;

wherein it is so constructed that RGB signals outputted from said suppression circuit are input into said color-difference signal forming circuit.

Claims 6-8 (Cancelled)

Claim 9 (Previously presented) A signal processing apparatus which processes a signal outputted from an image pickup element having complementary color filters, comprising:

interpolation circuit which generates complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to each said pixel position of the image pickup element;

RGB matrix circuit which generates RGB signals from the complementary color signals; and

suppression circuit being provided between said interpolation circuit and said RGB matrix circuit, which suppresses the complementary color signals interpolated by said interpolation circuit, if a level of luminance signal is out of a predetermined range;

wherein it is so constructed that the color signals outputted from said suppression circuit are inputted into RGB matrix circuit.

Claims 10-11 (Cancelled)

Claim 12 (Previously presented) A signal processing apparatus which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

interpolation circuit which generates complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels which adjacent to said each pixel position of the image pickup element; and

suppression circuit provided between said image pickup element and said interpolation circuit, which suppresses a color signal outputted from the image pickup circuit, if a level of a luminance signal is out of a predetermined range.

Claims 13-28 (Cancelled)

Claim 29 (Currently amended) A signal processing apparatus which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

a color-suppression circuit, provided for primary color signals or complementary color signals obtained from said image pickup element, for color-suppressing said primary color signals or said complementary color signals ~~so that a color-suppression is reduced as a~~ in accordance with the level of luminance signal ~~increases in a high level part of a luminance signal over a predetermined value;~~ and

~~a color signal processing circuit which processes output by said suppression circuit a~~
gamma-correction circuit which gamma-corrects the output signals suppressed by said
suppression circuit.

Claims 30-33 (Cancelled)

Claim 34 (Previously presented) A signal processing apparatus according to claim 1, further comprising gamma correction circuit provided between said suppression circuit and said color-difference signal forming circuit, which performs gamma correction on the plurality of color signals outputted from said suppression circuit.

Claim 35 (Previously presented) A signal processing apparatus according to claim 34, further comprising luminance signal correcting circuit which corrects the luminance signal on the basis of the plurality of color signals suppressed by said suppression circuit.

Claim 36 (Previously presented) A signal processing apparatus according to claim 35, wherein said luminance signal correcting circuit corrects the luminance signal before the luminance signal is gamma-corrected.

Claim 37 (Previously presented) A signal processing apparatus according to claim 5, further comprising gamma correction circuit provided between said suppression circuit and said color-difference signal forming circuit, which performs gamma correction on the RGB signals outputted from said suppression circuit.

Claim 38 (Previously presented) A signal processing apparatus according to claim 37, further comprising luminance signal correcting circuit which corrects the luminance signal on the basis of the RGB signals suppressed by said suppression circuit.

Claim 39 (Previously presented) A signal processing apparatus according to claim 38, wherein said luminance signal correcting circuit corrects the luminance signal before the luminance signal is gamma-corrected.

Claim 40 (Previously presented) A signal processing apparatus according to claim 9, further comprising luminance signal correcting circuit which corrects the luminance signal on the basis of the complementary color signals suppressed by said suppression circuit.

Claim 41 (Previously presented) A signal processing apparatus according to claim 40, wherein said luminance signal correcting circuit corrects the luminance signal before the luminance signal is gamma-corrected.

Claim 42 (Currently Amended) A signal processing apparatus according to claim 12, further comprising luminance signal correcting ~~image pickup~~ circuit which corrects the luminance signal on the basis of the color signal suppressed by said suppression circuit.

Claim 43 (Previously presented) A signal processing apparatus according to claim 42, wherein said luminance signal correcting circuit corrects the luminance signal before the luminance signal is gamma-corrected.

Claim 44 (Canceled).

Claim 45 (Currently amended) A signal processing apparatus ~~according to claim 29, which~~ processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

a color-suppression circuit, provided for primary color signals or complementary color signals obtained from said image pickup element, for color-suppressing said primary color signals or said complementary color signals in accordance with the level of luminance signal;
and

~~wherein said color signal processing circuit~~ is a color-difference signal forming circuit for converting the output signals color-suppressed by said color-suppression circuit into color-difference signals.

Claim 46 (Previously presented) A signal processing apparatus according to claim 29, further comprising:

A/D conversion circuit for A/D converting primary color signals or complementary color signals obtained from said image pickup element before said color-suppression circuit.

Claim 47 (New) A signal processing apparatus according to claim 45, further comprising:

A/D conversion circuit for A/D converting primary color signals or complementary color signals obtained from said image pickup element before said color-suppression circuit.

Claim 48 (New) A signal processing apparatus according to claim 29, further comprising:

a color-difference signal forming circuit for converting the output signals gamma-corrected by said gamma-correction circuit into color-difference signals.

Claim 49 (New) A signal processing method which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

interpolating a plurality of color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to said each pixel position of the image pickup element;

forming color-difference signals based on output in interpolating step;

suppressing the plurality of color signals interpolated between said color interpolating step and said forming step, if a level of a luminance signal is out of a predetermined range;

wherein it is so processed that plurality of color signals suppressed which are output from said suppressing step is regarded as input of said forming step.

Claim 50 (New) A signal processing method which processes a signal outputted from an image pickup element having complementary color filters, comprising:

interpolating complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to said each pixel position of the image pickup element;

generating RGB signals by performing RGB matrix into complementary color signals interpolated in said interpolating step;

forming color-difference signals based on the output in said RGB matrix step; and

suppressing, between said interpolating step and said forming step, the RGB signals generated in said RGB matrix step, if a level of a luminance signal is out of a predetermined range;

wherein it is so processed that RGB signals outputted in said suppressing step are input into said color-difference signal forming step.

Claim 51 (New) A signal processing method which processes a signal outputted from an image pickup element having complementary color filters, comprising:

interpolating by generating complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels adjacent to each said pixel position of the image pickup element;

generating RGB signals by performing RGB matrix into the complementary color signals interpolated in said interpolating step; and

suppressing the complementary color signals interpolated in interpolating step between said interpolating step and said generating step, if a level of luminance signal is out of a predetermined range;

wherein it is so processed that the color signals outputted in said suppressing step are inputted into RGB matrix circuit.

Claim 52 (New) A signal processing method which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

interpolating by generating complementary color signals for each pixel position of the image pickup element by interpolation based on signals of pixels which adjacent to said each pixel position of the image pickup element; and

suppressing, between said image pickup element and said interpolating step, a color signal outputted from the image pickup step, if a level of a luminance signal is out of a predetermined range.

Claim 53 (New) A signal processing method which processes a signal outputted from an image pickup element having filters arranged to use plural kinds of colors, comprising:

a color-suppressing primary color signals or complementary color signals obtained from said image pickup element in accordance with the level of luminance signal; and

a gamma-correcting the output signals suppressed in said color-suppression step.

Claim 54 (New) A signal processing method according to claim 49, further comprising:

performing, between said suppressing step and said forming step, gamma correction on the plurality of color signals outputted from said suppressing step.

Claim 55 (New) A signal processing method according to claim 54, further comprising:

correcting luminance signal on the basis of the plurality of color signals suppressed in said suppressing step.

Claim 56 (New) A signal processing method according to claim 55, wherein said luminance signal is corrected before the luminance signal is gamma-corrected.

Claim 57 (New) A signal processing method according to claim 50, further comprising:
performing gamma correction, between said suppressing step and said forming step, on the
RGB signals outputted in said suppressing step.

Claim 58 (New) A signal processing method according to claim 57, further comprising:
correcting the luminance signal on the basis of the RGB signals suppressed in said
suppressing step.

Claim 59 (New) A signal processing method according to claim 58, wherein said luminance
signal is corrected before the luminance signal is gamma-corrected.

Claim 60 (New) A signal processing method according to claim 51, further comprising:
correcting the luminance signal on the basis of the complementary color signals suppressed in
said suppressing step.

Claim 61 (New) A signal processing method according to claim 60, wherein said luminance
signal is corrected before the luminance signal is gamma-corrected.

Claim 62 (New) A signal processing method according to claim 52, further comprising:
correcting the luminance signal on the basis of the color signal suppressed in said suppressing
step.

Claim 63 (New) A signal processing method according to claim 62, wherein said luminance
signal is corrected before the luminance signal is gamma-corrected.

Claim 64 (New) A signal processing method which processes a signal outputted from an
image pickup element having filters arranged to use plural kinds of colors, comprising:

suppressing, primary color signals or complementary color signals obtained from said
image pickup element, in accordance with the level of luminance signal; and
forming color-difference signal by converting the output signals color-suppressed in

said color-suppressing step into color-difference signals.

Claim 65 (New) A signal processing method according to claim 49, further comprising:

A/D converting primary color signals or complementary color signals obtained from said image pickup element before said the signals are suppressed in said suppressing step.

Claim 66 (New) A signal processing method according to claim 53, further comprising:

A/D converting primary color signals or complementary color signals obtained from said image pickup element before said the signals are suppressed in said suppressing step.